Math 211
Quiz 10B

W 07 Aug 2019

Your name : _____

Exercise

(5 pt) Consider the matrix

$$\mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ -1 & -1 & -1 \\ 0 & 2 & 2 \end{bmatrix}.$$

(a) (2 pt) Show that $\det \mathbf{A} = -2$.

(b) (2 pt) Apply the row reduction algorithm to $\left[\begin{array}{c|c} \mathbf{A} & \mathbf{I}_3 \end{array}\right]$ to show that

$$\mathbf{A}^{-1} = -\frac{1}{2}\begin{bmatrix} 0 & 2 & 1 \\ 2 & 2 & -2 \\ -2 & -2 & 1 \end{bmatrix}.$$

(c) (1 pt) What is $\det(\mathbf{A}^5)$? *Hint:* You can answer this without computing $\mathbf{A}^5$ directly. How?